

Weekly Report

2nd - 8th, October 2017

Done:

1. Discussion with Yolo County Emergency Department. Dana introduced their current system, the different types/formats of data/sources, the problems they came across (data quality, info lag, rumors), and potential requirements.
2. Collect and read several papers which may have something to do with above stuffs.
3. Review a CHI paper for Prof. Wu.
4. Finish learning D3 tutorial chap. 5.
5. Know more projects in the lab.

Some potential interesting topics derived from 1 after roughly reading several papers (hazard management related paper from David Ebert, Ross Maciejewski, Rumor propagation paper from the perspective social network, evacuation planning from the perspective of flows on graph).

1. Evacuation route planning based on road net info + traffic info + social media (like twitter report of hazard). Sort of optimization problems on network.
2. Hazards prediction based on: historical record + surrounding geospatial info (like wind speed, direction) + traffic and so on. Sort of recommendation (association rules/collaborative filtering)
3. Rumor detection/rumor control based on: social media records (multiple sources→Multilayer Networks propagation) + surrounding geospatial info (like wind speed, direction) + traffic and so on.

To Do:

1. Discussion again on Monday. It's one potential VIS-submission topic, the advantage is we have expert users, exclusive data and user feedback, but as Jia-Kai mentioned it will lack the generalizability.
2. Another potential topic is network navigation. However, not much effort on it yet. Perhaps I will discuss with Tarik on this topic.
3. Condense topic(s), to be more prepared for vis
4. Go on learning D3.

Paper reading:

Spatiotemporal Social Media Analytics for Abnormal Event Detection and Examination using Seasonal-Trend Decomposition: 结合多个数据源进行可视分析的范式. 其异常检测算法在下面一篇也有用到, 以我个人观点来看也是很难做到实时的. 但是其分析的框架流程是很值得借鉴的, 对于专家所能采取的交互也是恰到好处.

Public behavior response analysis in disaster events utilizing visual analytics of microblog data: 本文多为看图说话, 其实和这边应急部门数据很类似, 要做的东西也差不多, 对于他们工作可能有一定启发性, 可以在后面和 Dana 讨论的时候说一说. 不过很多都是事后的分析, 对于灾后分析或者说灾后重建可能有一定帮助

Visualizing Behavioral Uncertainty in Game-play: An Application of Shannon Entropy in Event

Sequence Visualization 对于游戏中行为不确定性的可视分析，文章对这里的 uncertainty 提出了一个自己的概念，并希望用最简单的信息熵来表示这个概念。个人觉得这个想法过于简单，系统也没有完整的图示出来，视频也没有读起来很吃力，很多地方根本只有文字没有图，估计跟我那时候投稿一样仓促把。但是优点也是有的，我怀疑这是一名搞 CHI 的人刚开始写 VIS 相关的 CHI 文章，因为在涉及交互的时候写的非常细致。

Prominent Features of Rumor Propagation in Online Social Media 从时间序列特征，网络结构特征，文本特征三个角度对真实的谣言扩散数据做了分析，并得出了一些有用结论。在本文中，作者发现最有用的还是时间序列特征。在以后可以用这一个模型。其实从这三个角度分析谣言扩散都有不少文章。

MADIS: A Multimedia-Aided Disaster Information Integration System for Emergency Management 本文是提出了一种应对灾害的实际产品，利用机器学习方法，将灾害报告信息、现场图片加以标注分类信息结合起来，给应急管理部门的用户使用，用户可以加入自己的知识更新信息与关联。

安排表

讨论研究主题	月底	应急数据继续专家讨论第二次；网络数据应用找实验室前辈讨论。两者可结合最好
D3 学习及框架	ASAP	第五章已完成，下周第六章
专利	ASAP	忘记催了，这周催下